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**(54) Title:** PHARMACEUTICAL COMBINATION PREPARATIONS**(57) Abstract**

The present invention is concerned with a pharmaceutical combination preparation for the treatment of cardiac and cardiovascular disorders such as hypertension, angina pectoris, cardiac insufficiency and illnesses associated therewith, containing the active substances carvedilol or a pharmaceutically acceptable salt thereof and hydrochlorothiazide or a pharmaceutically acceptable salt thereof as well as pharmaceutically usual additives.

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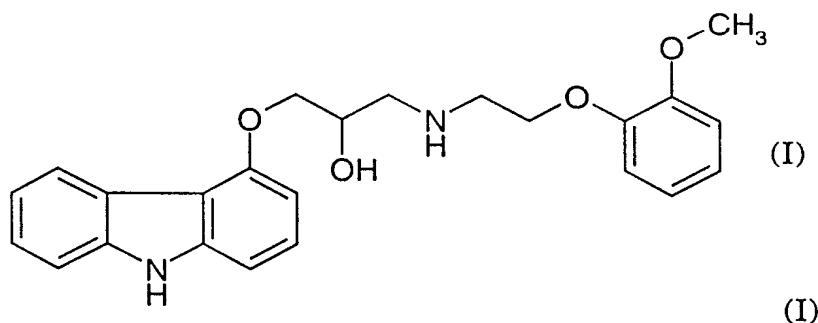
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Pharmaceutical Combination Preparations

The present invention is concerned with pharmaceutical combination preparations which are suitable for the treatment of cardiac and cardiovascular disorders and illnesses associated therewith and which contain carvedilol and hydrochlorothiazide as active substances.

Carvedilol, a compound of formula (I)

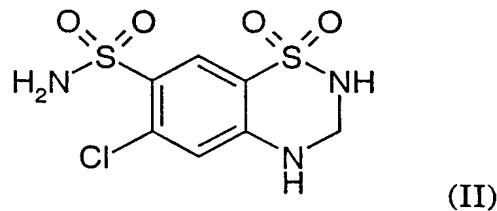
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15 is a  $\beta$ -blocker with additional  $\alpha_1$ -blocking activity which has been commercially available for several years under the trade name Dilatrend<sup>TM</sup>.

Hydrochlorothiazide, a compound of formula (II)

20



is a diuretic which has been marketed for decades under the name Esidrex<sup>TM</sup>.

25 The combination of a  $\beta$ -blocker with a diuretic has been used successfully for a long time in the treatment of cardiac and circulatory disorders such as hypertension, angina pectoris, cardiac insufficiency and illnesses associated therewith. There are many

studies which have investigated the advantages of the combination therapy of carvedilol and hydrochlorothiazide (e.g. Widmann et al., 1990, Eur J Clin Pharmacol 38 (2) 143-146; van der Does et al., 1990, Eur J Clin Pharmacol 38 (2) 147-152; McTavish et al., 1993, Drugs 45(2), 232-258). In all of the studies mentioned above the two active substances carvedilol and hydrochlorothiazide were administered in succession in the form of two tablets . A fixed combination of the two active substances could not be realized until now.

The two active substances carvedilol and hydrochlorothiazide have a different solubility and, when granulated together, give end products with inadequate active substance release and bioavailability. This leads to problems in the provision of the two active substances as a combination preparation, for example as a tablet.

The object of the invention is to avoid the aforementioned disadvantage.

15

The present invention is concerned with pharmaceutical combination preparations containing the active substances carvedilol or a pharmaceutically acceptable salt thereof and hydrochlorothiazide or a pharmaceutically acceptable salt thereof as well as pharmaceutically usual additives. Moreover, the present invention is concerned with the use of this combination preparation for the treatment of cardiac and circulatory disorders such as hypertension, angina pectoris, cardiac insufficiency and illnesses associated therewith.

Under the term "pharmaceutical combination preparation" there is to be understood a pharmaceutically acceptable dosage form which simultaneously contains two or more active substances.

Pharmaceutically acceptable salts of the compounds of formulae (I) and (II) include alkali salts, such as Na or K salts, alkaline earth metal salts, such as Ca and Mg salts, as well as salts with organic or inorganic acids, such as, for example, hydrochloric acid, hydrobromic acid, nitric acid, sulphuric acid, phosphoric acid, citric acid, formic acid, maleic acid, acetic acid, succinic acid, tartaric acid, methanesulphonic acid or toluenesulphonic acid, which are non-toxic for living organisms.

35 Under "drying loss" of granulates there is to be understood the gravimetric determination of the weight difference between original granulate and the granulate dried to constant weight. The drying can be effected, for example, in a drying oven at

elevated temperatures, with an infrared lamp, with a microwave apparatus, with a hot air blower, etc.

The measurement of the granulate moisture is effected with a SUPERMATIC 5 rapid hygrometer from the firm Foss Electric (accuracy  $\pm 0.25\%$ ). The measurement principle is based on the measurement of the dielectric constants of the measured material. A sample amount of 250 g was used.

In a preferred embodiment of the combination preparation in accordance with 10 the invention the weight ratio of hydrochlorothiazide or a pharmaceutically acceptable salt thereof to carvedilol or a pharmaceutically acceptable salt thereof lies between 1:0.5 and 1:10, preferably between 1:0.5 and 1:5, especially at 1:2.

A combination preparation in accordance with the invention which contains 15 between 10 mg and 50 mg, preferably 25 mg, of carvedilol or a pharmaceutically acceptable salt thereof and between 5 mg and 30 mg, preferably 12.5 mg, of hydrochlorothiazide or a pharmaceutically acceptable salt thereof in an oral dosage form is especially preferred.

20 The combination preparations in accordance with the invention can contain additives such as binders, plasticizers, diluents, carriers, glidants, antistatics, adsorbing agents, separating agents, dispersants, drageeing lacquers, de-foamers, film formers, emulsifiers, disintegrants and fillers in the tablets and/or the coating. Tablets or 25 granulates, for example, can contain flavour-improving additives as well as substances usually used as preservatives, stabilizers, moisture-retainers and emulsifiers, salts for varying the osmotic pressure, buffers and other additives.

The additives mentioned above can comprise organic or inorganic substances, e.g. water, sugar, salts, acids, bases, alcohols, organic polymeric compounds and the like. 30 Lactose, saccharose, magnesium stearate, various celluloses and substituted celluloses, polymeric cellulose compounds, highly dispersed silicon dioxide, maize starch, talc and various polymeric polyvinylpyrrolidone compounds are preferred additives. For example, polyvinylpyrrolidones, which are not cross-linked, with a molecular weight of 8,000 to 630,000, preferably 25,000, and cross-linked polyvinylpyrrolidones with a 35 molecular weight greater than 1,000,000 can be used. It is a prerequisite that all additives used in the production are non-toxic and advantageously do not alter the bioavailability of the active substances.

Solid dosage forms which contain 0-50 weight % lactose, 0-50 weight % saccharose, 0-10 weight % magnesium stearate, 0-30 weight % cellulose, 0-10 weight % polyvinylpyrrolidone, 0-10 weight % polymeric cellulose compounds, 0-10 weight %  
5 highly dispersed silicon dioxide and 0-20 weight % cross-linked polyvinylpyrrolidone as additives are especially preferred.

A combination preparation in accordance with the invention which contains about 25 mg of carvedilol, about 12.5 mg of hydrochlorothiazide, about 25.0 mg of  
10 saccharose, about 28.06 mg of lactose, about 1.78 mg of polyvinylpyrrolidone, about 20.17 mg of cross-linked polyvinylpyrrolidone, about 10-0 mg of microcrystalline cellulose, about 5.32 mg of highly dispersed silicon dioxide and about 2.17 mg of magnesium stearate per 130 mg solid dosage form is especially preferred.

15 Further, it has surprisingly been found that the process used for the production of the combination preparations permits the two active substance granulates to be pressed to a stable tablet in one operation.

The active substances and additives required for the production of the combination preparation in accordance with the invention are known (Carvedilol: EP 0004920; hydrochlorothiazide: Pharmaceutically Active Substances; Syntheses, Patents, Uses, A. Kleemann et al., 2<sup>nd</sup> Edition, published by Georg Thieme, 1982, page 469) or are commercially available or can be produced in accordance with known methods.

25 The process for the production of the combination preparation in accordance with the invention can comprise the steps described hereinafter, but is not limited to these individual steps:

- 30 a) the production of a carvedilol granulate;
- b) the production of a hydrochlorothiazide granulate;
- c) the processing of a carvedilol granulate and a hydrochlorothiazide granulate to a press mass, with the two granulates each having a granulate moisture content between 6 and 20% and a bulk density between 0.1 and 1.5 g/ml  
35 and the granulate moisture content and the bulk density of the two granulates in each case not varying from one another by more than 30%, preferably 20%;

d) the production of a solid dosage form, preferably a tablet, from the press mass obtained under c).

5 The carvedilol granulate is preferably produced by fluidized bed granulation, the hydrochlorothiazide granulate preferably by granulation in a high speed mixer-granulator (e.g. DIOSNA P 450).

10 The granulate moisture content of the carvedilol granulate and of the hydrochlorothiazide granulate preferably lies between 10 and 15%.

The bulk density of the two granulates preferably lies between 0.4 and 0.75 g/ml.

15 In a particular embodiment the combination preparation, as well as a carvedilol preparation alone, can be provided with a light-protecting film.

20 As carvedilol is an active substance which is particularly sensitive to light, a distinct brown coloration of the active substance occurs not only in the case of the pure active substance but also in the case of carvedilol-containing medicaments in different dosages when these forms are exposed to light.

Under a "light-protecting film" there is to be understood a coating based on an aqueous film suspension applied to the dosage form; preferably by spraying.

25 The film suspension preferably contains 10-50 weight% poly(ethyl acrylate, methyl acrylate) 2:1, 800,000, 1-10 weight% sodium citrate, 1-25 weight% methylhydroxypropylcellulose, 0-20 weight% macrogol 10,000, 5-40 weight% talc, 2-25 weight% titanium dioxide, 0-10 weight% indigocarmine colour lacquer, 0-2 weight% polysorbate and 0-1.0 weight% dimethicone.

30 A light-protecting film which contains about 2.348 mg of poly(ethyl acrylate, methyl acrylate) 2:1, 800,000, about 0.308 mg of sodium citrate, about 1.018 mg of methylhydroxypropylcellulose, about 0.644 mg of macrogol 10,000, about 1.624 mg of talc, about 0.950 mg of titanium dioxide, about 0.170 mg of indigocarmine colour lacquer, about 0.034 mg of polysorbate and about 0.004 mg of dimethicone per 7 g of film suspension is especially preferred.

All polysorbates (polyoxyethylene derivatives) of the polysorbate 20 to polysorbate 85 type, preferably polysorbate 80, can be used for the film coating.

Although the light-protecting film described above is used for the film coating of 5 oral dosage forms, such as e.g. tablets, containing carvedilol, not only as a single but also as a combination preparation, it is, of course, also suitable for tablets containing other light-sensitive active substances.

In a further embodiment the invention also includes a process for the application 10 of a light-protecting film.

As carvedilol is soluble in water with great difficulty, carvedilol-containing medicaments contain an especially high content of disintegrant (15-20 weight% cross-linked polyvinylpyrrolidone).

15

It will, however, be known to a person skilled in the art that the direct application of an aqueous suspension to a tablet with a disintegrant content of more than 5 weight% in one operation is associated with problems. A reaction takes place by the contact of the water from the film suspension with the disintegrant from the tablet, which softens the 20 surface of the tablet.

It has now surprisingly been found that by the process described hereinafter an aqueous suspension, preferably an aqueous light-protecting suspension, such as e.g. the aforementioned film suspension, can be applied in one operation to a tablet having a 25 disintegrant content of more than 5%.

The specific procedure at the beginning of the film coating is critical for the process: The spray rate must be so low at the beginning on the one hand to permit the formation of a film on the tablet surface and on the other hand to remove the water of 30 the film suspension as rapidly as possible from the tablet surface. This procedure is additionally assisted by the supply of large amounts of air and a high air supply temperature in the drageeing kettle. As soon as this critical phase of the film coating has been completed, i.e. a thin film has formed over the entire tablet, the spray rate can be increased to an extent which is usual in the case of conventional film coatings. The film 35 coating can be carried out to the end using this increased spray rate.

The aforementioned special film coating procedure is also facilitated and assisted by the composition of the film suspension.

5       The tablets to be film coated are added to a drageeing kettle (e.g. a 50 kg drageeing kettle from the firm BRUCKS, Model XI) and film coated with the light-protecting suspension (film coating e.g. with a binary spray nozzle from the firm WALTHER, PILOT type, Model WA).

10      The following data refer to a film coating using the aforementioned drageeing kettle and binary spray nozzles. However, these values can vary depending on the equipment used.

15      During the first 30 to 70, preferably 50, minutes the film coating of the solid dosage form is effected with 30 to 50 g, preferably with 40 g, of film suspension per minute and subsequently until the film coating has finished with 60 to 90 g, preferably with 74 g, of film suspension per minute.

20      In a process variant, after 40 to 60 minutes the spray rate can also be increased continuously to the maximum value of 60 to 90 g per minute.

25      The film coating process described above can be used for the film coating of any pharmaceutically acceptable solid dosage form, such as, e.g. tablets, with a disintegrant content of more than 5%.

30      Thus, for example, a pharmaceutically acceptable solid dosage form containing 0-20 weight% carvedilol, 0-50 weight% lactose, 0-50 weight% saccharose, 0-10 weight% magnesium stearate, 0-30 weight% cellulose, 0-10 weight% polyvinylpyrrolidone, 0-10 weight% highly dispersed silicon dioxide and 0-20 weight% cross-linked polyvinylpyrrolidone can also be coated with a pharmaceutically acceptable aqueous film suspension.

35      The combination preparations produced and film coated according to the process in accordance with the invention have a surprisingly long stability.

40      A preferred administration form of the combination preparation in accordance with the invention is one for oral administration. Preferred dosage forms are tablets, capsules and dragées, preferably tablets.

The dosage in which the combination preparation in accordance with the invention is administered depends on the age and the requirements of the patient and on the route of administration. In general, dosages of about 10-50 mg of carvedilol and 5 about 5-30 mg of hydrochlorothiazide per day come into consideration.

The following Examples are intended to describe the preferred embodiments of the present invention, without thereby limiting it.

10

Example 1Production of a carvedilol granulate

a) Production of the suspension

15

64,500 g of purified water are placed in a kettle and 15,000 g of sieved lactose D80, 7,500 g of sieved saccharose and 1,500 g of polyvinylpyrrolidone 25,000 (e.g. Kollidon 25) are added thereto and dissolved while stirring for 30 minutes. Subsequently, 3,000 g of highly dispersed silicon dioxide (e.g. Aerosil 200) and 37,500 g of finely crystalline 20 carvedilol are added to the above solution and stirred for 30 minutes until a homogeneous suspension is produced. The suspension is pumped over a colloid mill and a hand sieve into a different container. The suspension is stirred continuously until the fluidized bed granulation has finished in order to prevent settling.

25 b) Fluidized bed granulation

30,000 g of finely ground saccharose and 15,000 g of cross-linked polyvinyl-pyrrolidone (e.g. Plasdome XL) are placed in the pan of the fluidized bed granulator (e.g. GLATT – WSG 150). The suspension obtained under a) is introduced using a tube 30 pump (internal tube diameter: 10 mm) via a 2.2 mm binary nozzle (1<sup>st</sup> material: suspension; 2<sup>nd</sup> material: purified compressed air of 6 bar). The spray granulation takes place with an air supply temperature of about 80°C and a product temperature of about 34°C to 37°C. The moisture content of the spent air amounts to 50 to 70% of the relative humidity, the spraying time amounts to about 120 minutes.

35

c) Sieving

After the fluidized bed granulation the granulate is passed through a sieve with a mesh size of 1.2 mm.

d) Final mixing

5

8,250 g of cross-linked polyvinylpyrrolidone (e.g. Plasdone XL) and 3,000 g of highly dispersed silicon dioxide (e.g. Aerosil 200) are passed through a sieve with a mesh size of 1.2 mm and homogenized with the granulate in a mixer (e.g. a plowshare mixer from the firm LÖDIGE). Then, 2,250 g of magnesium stearate are passed through a sieve 10 with a mesh size of 1.2 mm and the sieved magnesium stearate is mixed briefly with the granulate and the granulate yield is established (target weight: 123,000 g). Subsequently, the IPC values (IPC = in process control) of the final mixture are determined, with it being necessary to achieve the following target values:

15	Granulate moisture	11.5-12.5%
	Drying loss (microwave)	2.0-3.0%
	Bulk density	0.50-0.65 g/ml

Example 2

20

Production of a hydrochlorothiazide granulate

a) Production of the granulation solution

25 1,040 g of polyvinylpyrrolidone 25,000 (e.g. Kollidon 25) are dissolved in 9,620 g of water while stirring.

b) Granulation of the active substance and additives

30 19,500 g of hydrochlorothiazide and 28,340 g of lactose are mixed in a mixer-granulator (e.g. DIOSNA) for 4 minutes. Thereafter, 10,660 g of the granulation solution from a) are sprayed into the mixer with a spray pressure of 2 bar and granulated in the mixer-granulator for 5 minutes. The mist granulate is dried to a defined final moisture content at an air inlet temperature of 75°C.

35

c) Granulate sieving

The dried granulate from b) is passed through a pharma sieve with a mesh size of 1.25 mm [and] subsequently the granulate moisture is determined. The target value lies at 9.5 to 11.0%. Subsequently, the granulate weight is determined (target weight: 74,880 g).

5

d) Production of the final mixture

15,600 g of microcrystalline cellulose together with 7,280 g of cross-linked polyvinylpyrrolidone (e.g. Plasdome XL), 2,080 g of highly dispersed silicon dioxide (e.g. 10 Aerosil 200) and 1,040 g of magnesium stearate are passed through a pharma sieve with a mesh size of 1.25 mm. This sieved material and the sieved granulate from c) are added to a pharma mixer and mixed for 30 seconds. The finished mixture is discharged into a pharma container and the yield is determined. Subsequently, the IPC values of the final mixture are determined, with it being necessary to achieve the following target values:

15

Granulate moisture	10.0-11.0%
Drying loss (microwave)	1.5-2.5%
Bulk density	0.50-0.65 g/ml

20

Example 3

Production of a carvedilol-hydrochlorothiazide press mass

a) Mixing of the press mass

25

70,340 g of hydrochlorothiazide granulate and 120,160 g of carvedilol granulate are placed in a suitable pharma mixer (e.g. plowshare mixer LÖDIGE) and homogeneously mixed. The mixing time amounts to 3 minutes. The finished mixture is filled into an air-tight container through which light cannot pass and the yield is determined (target 30 weight: 19,500 g). Subsequently, the IPC values of the final mixture are determined, with it being necessary to achieve the following target values:

35

Granulate moisture	11.0-12.0%
Drying loss (microwave)	2.0-3.0%
Bulk density	0.50-0.65 g/ml

Example 4Production of the tablets

5        The press mass is pressed using a computer-controlled high performance rotary tablet press (e.g. KILIAN TX 40 with automatic pressing force control as well as regulation and control of the tablet weight) to tablets, which are stored in container through which light cannot pass.

10

Example 5Protection of carvedilol-containing medicaments from light by film coating

a)      Production of the film suspension:

15

364 g of Pharmacoat (= methylhydroxypropylcellulose), 230 g of macrogol 10,000, 110 g of sodium citrate, 979 g of talc, 339 g of titanium dioxide, 12 g of Tween (polysorbate 80), 61 g of indigocarmine colour lacquer and 4 g of dimethicone are dissolved in 6,900 g of hot water (30-60°C) while stirring. The homogeneous solution is 20 passed twice through a colloid mill. 401 g of Eudragit NE 30 D are added immediately before the film coating.

b)      Film coating:

25

60-70 kg of dust-free tablets from Example 3 are placed in a drageeing kettle and film coated with the suspension from a). The cores are sprayed from above, with the distance of the spray nozzle from the core bed being about 60-70 cm. A binary nozzle (compressed air/liquid) with a diameter of 1.8 mm is used for this purpose. The sprayed air pressure (purified compressed air) amounts to 3 bar, the temperature of the input air 30 amounts to 70°C, the amount of input air amounts to 350-500 m<sup>3</sup>/h and the amount of spent air amounts to 700-1,000 m<sup>3</sup>/h. A tube pump is used to introduce the liquid, with the PVC pipe having an external diameter of 8 mm and an internal diameter of 4 mm. The pump speed is 10 rpm during the first 50 minutes and is subsequently 25 rpm. Based on the film suspension, the pump speed is 40 g suspension/minute during the first 35 50 minutes and subsequently (about a further 100 minutes) it is increased stepwise up to 74 g suspension/minute. The rotation velocity of the kettle is 12 rpm during the first 50 minutes and is thereafter 18 rpm. The kettle inclination lies at 60 degrees.

Example A

Tablets containing the following ingredients can be produced according to the process described above:

5       Active substances

Carvedilol	25.000 mg
Hydrochlorothiazide	12.500 mg

Additives

10	Saccharose Ph.Eur.	25.000 mg
	Lactose 1 H <sub>2</sub> O Ph.Eur.	28.060 mg
	Polyvinylpyrrolidone 25.000 Ph.Eur.	1.780 mg
	Cross-linked polyvinylpyrrolidone NF	20.170 mg
	Microcrystalline cellulose Ph.Eur.	10.000 mg
15	Highly dispersed silicon dioxide Ph.Eur.	5.320 mg
	Magnesium stearate Ph.Eur.	2.170 mg

Film coating

20	Poly(ethyl acrylate, methyl acrylate) 2:1, 800,000	2.248 mg
	Sodium citrate Ph.Eur.	0.308 mg
	Methylhydroxypropylcellulose Ph.Eur.	1.018 mg
	Macrogol 10.000	0.644 mg
	Talc Ph.Eur.	1.624 mg
	Titanium dioxide Ph.Eur.	0.950 mg
25	Indigocarmine colour lacquer	0.170 mg
	Polysorbate 80 Ph.Eur.	0.034 mg
	Dimethicone	0.004 mg

## Claims:

1. A pharmaceutical combination preparation containing the active substances carvedilol or a pharmaceutically acceptable salt thereof and hydrochlorothiazide or a pharmaceutically acceptable salt thereof as well as pharmaceutically usual additives.
2. A pharmaceutical combination preparation according to claim 1, wherein the weight ratio of hydrochlorothiazide or a pharmaceutically acceptable salt thereof to carvedilol or a pharmaceutically acceptable salt thereof lies between 1:0.5 and 1:10.
3. A pharmaceutical combination preparation according to one of claims 1 to 2, comprising a dosage form containing between 10 mg and 50 mg of carvedilol or a pharmaceutically acceptable salt thereof and between 5 mg and 30 mg of hydrochlorothiazide or a pharmaceutically acceptable salt thereof.
4. A pharmaceutical combination preparation according to any one of claims 1 to 3, wherein binders, disintegrants, glidants, adsorption agents, separating agents, fillers and carriers are present as additives.
5. A pharmaceutical combination preparation according to any one of claims 1 to 4, which contains 0-50 weight % lactose, 0-50 weight % saccharose, 0-10 weight % magnesium stearate, 0-30 weight % cellulose, 0-10 weight % polyvinylpyrrolidone, 0-10 weight % polymeric cellulose compounds, 0-10 weight % highly dispersed silicon dioxide and 0-20 weight % cross-linked polyvinylpyrrolidone.
6. A solid dosage form containing a pharmaceutical combination preparation according to any one of claims 1 to 5.
7. The use of a pharmaceutical combination preparation according to any one of claims 1 to 6 for the treatment of cardiac and circulatory disorders such as hypertension, angina pectoris, cardiac insufficiency and illnesses associated therewith.
8. A method for the treatment of cardiac and circulatory disorders such as hypertension, angina pectoris, cardiac insufficiency and illnesses associated therewith, which method includes the administration of an effective amount of a pharmaceutical combination preparation according to any one of claims 1 to 5.

9. A process for the production of a pharmaceutical combination preparation containing carvedilol or a pharmaceutically acceptable salt thereof and hydrochlorothiazide or a pharmaceutically acceptable salt thereof as well as pharmaceutically usual additives, which process comprises the following steps:

a) the processing of a carvedilol granulate and a hydrochlorothiazide granulate to a press mass, with the two granulates each having a granulate moisture content between 6 and 20% and a bulk density between 0.1 and 1.5 g/ml and the granulate moisture content and the bulk density of the two granulates in each case not varying from one another by more than 30%;

b) the production of a solid dosage form from the press mass obtained under a).

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10. A process according to claim 9, wherein the granulate moisture content of the carvedilol granulate and of the hydrochlorothiazide granulate lies between 10 and 15%.

20 11. A process according to one of claims 9 to 10, wherein the bulk density lies between 0.4 and 0.75 g/ml.

12. A process according to any one of claims 9 to 11, wherein the press mass is processed to tablets using a tablet press.

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13. A process according to any one of claims 9 to 12, wherein the solid dosage form obtained is coated with a pharmaceutically acceptable aqueous film suspension.

30 14. A process according to claim 13, wherein the film coating of the solid dosage form is carried out with 30 to 50 g of film suspension per minute during the first 30 to 70 minutes and subsequently with 60 to 90 g of film suspension per minute until the film coating has finished.

35 15. A pharmaceutically acceptable combination preparation according to any one of claims 1 to 6, when produced according to the process set forth in any one of claims 9 to 12.

16. A pharmaceutically acceptable combination preparation according to any one of claims 1 to 6, when produced according to the process set forth in claim 13 or claim 14.

5 17. A pharmaceutically acceptable solid dosage form according to any one of claims 1 to 5 having a disintegrant content of at least 5 weight%, said solid dosage form being coated with a pharmaceutically acceptable aqueous film suspension.

10 18. A pharmaceutically acceptable solid dosage form having a disintegrant content of at least 5 weight%, said solid dosage form being coated with a pharmaceutically acceptable aqueous film suspension.

19. A pharmaceutically acceptable solid dosage form according to claim 18, which contains carvedilol as the active substance.

15 20. A light-protecting film suspension containing 10-50 weight% poly(ethyl acrylate, methyl acrylate) 2:1, 800,000, 1-10 weight% sodium citrate, 1-25 weight% methylhydroxypropylcellulose, 0-20 weight% macrogol 10,000, 5-40 weight% talc, 2-25 weight% titanium dioxide, 0-10 weight% indigocarmine colour lacquer, 20 0-2 weight% polysorbate and 0-1.0 weight% dimethicone.

21. The use of a light-protecting film suspension according to claim 20 for the film coating of light-sensitive pharmaceutically active substances.

25 22. The invention as hereinbefore described.